



**2009**  
CITY OF GOLDEN

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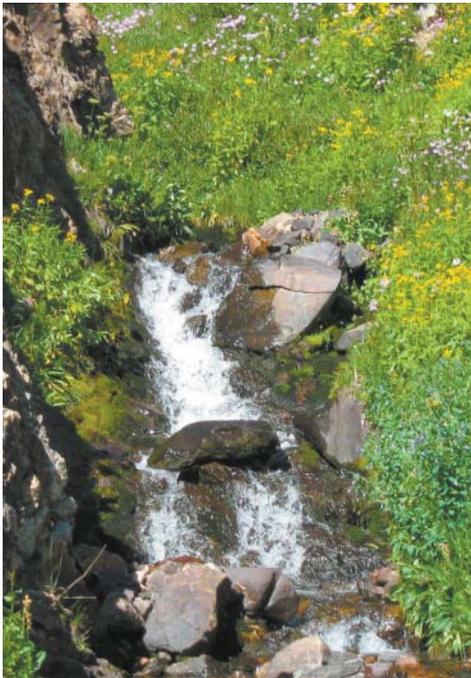
**Water Quality Report**

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# Source Water Assessment

The City of Golden is pleased to provide you with your 2009 Water Quality Report. It contains important data and facts about your drinking water, where it comes from and how it is treated and delivered to Golden consumers. We hope you will find this information useful and welcome any comments or feedback you may have. The Environmental Services Division can be reached at 303-384-8181 or at [esdiv@cityofgolden.net](mailto:esdiv@cityofgolden.net). To learn more, go online at [www.cityofgolden.net](http://www.cityofgolden.net).

*The City of Golden is an active member of the Upper Clear Creek Watershed Association – a management agency dedicated to protecting the water quality in Clear Creek.*



Golden's drinking water source is exclusively Clear Creek and its tributaries. As it flows through the watershed, it dissolves naturally occurring minerals and, in some cases, radioactive materials from rock surfaces and the riverbed. Water quality in Clear Creek may also be influenced by rock or landslides, runoff from deciduous and evergreen forested areas, animal activity or by substances that are a result of human activity. Construction and highway operations, mining, quarry and gravel pits, as well as remediation projects can all impact water quality.

Contaminants that may be present in source waters include:

- Bacteria and viruses from wastewater treatment plants, individual septic systems, livestock operations and wildlife
- Salts and metals from highway/road maintenance and construction operations, mine waste piles, active and abandoned mines or mine cleanup sites, oil and gas production, farming and stormwater runoff
- Organic contaminants, including synthetic and volatile organic chemicals which are by-products of industrial processes and petroleum production, or may come from petroleum spills from gas stations, traffic accidents or leaking aboveground or underground storage tanks
- Radioactive contaminants that are

naturally occurring or can be the result of mining activity or oil and gas production

- Pesticides and herbicides from residential lawns, agricultural activities or stormwater runoff

In order to ensure that tap water is safe to drink, the Colorado Department of Public Health and Environment (CDPHE) has regulations that limit the amount of certain contaminants in the treated water provided by public water systems such as Golden's. The Food and Drug Administration (FDA) sets similar limits for contaminants in bottled water that must provide the same protection for consumers, however, the regulations and testing requirements are much less stringent than for tap water. CDPHE also provides consumers with a Source Water Assessment Report that is specific to Golden's raw water supply. The report is not an indication of the current quality of our water source but provides a screening level evaluation of potential impacts to Clear Creek and rates the possible susceptibility to those sources. Information from the report is available to Golden to develop and implement water management strategies in order to optimize treatment and protect the quality of our drinking water.

The report is available online at [www.cdphe.state.co.us/wq/sw/swaphom.html](http://www.cdphe.state.co.us/wq/sw/swaphom.html) or may be obtained by contacting the City of Golden Environmental Services Division at 303-384-8181.

# Source Water Protection



## Clear Creek Emergency Call-Down System

In order to notify Clear Creek water users of any potential contamination from an upstream source, Clear Creek County and the City of Golden use an emergency call-down system. First responders to an event, usually police or fire, determine if there has been an impact to Clear Creek or one of its tributaries. If so, the first responder will initiate the call-down to provide notice to downstream water users. Usually, the call-down is triggered by a car accident where a vehicle ends up in Clear Creek and is leaking fluids. However, it can also be related to a release from an historic mining operation, a spill from a tank or tanker truck, or even concerns about water quality impacts from a rock slide or other natural event. In 2009, the call-down was triggered nine times. When the operators at the water treatment plant receive a call informing them of potential contamination, they refer to a USGS time of travel study conducted on Clear Creek. Using this study, the operators can determine how quickly the spill will reach Golden's intake based on current stream flows. The operator will then close the intake before the contamination can enter Golden's water supply and will keep it closed until the source of contamination has passed. While Golden's water plant has the ability to remove contaminants from water, this system allows the operators to avoid additional or unusual contaminants and provides an additional layer of protection for Golden's water supply.

## How to Report a Spill in Golden

The City's storm drainage system is a system of streets, gutters, inlets, pipes and open channels. The system is designed to collect stormwater runoff – rain and snow melt – and release it into Clear Creek.

Stormwater is not treated at a treatment plant the way sanitary wastewater (from indoor drains) is treated. Therefore what goes into the storm drainage system, goes into Clear Creek. Many pollutants are transported by stormwater runoff to Clear Creek – think of oil stains on a parking lot, for instance. However, sometimes people intentionally, or unknowingly, introduce pollutants into the storm drainage system.

Some people think that the storm drain leads to a treatment plant and purposefully dispose of wastes in the nearest storm drain inlet. Others think that if a substance is biodegradable, it's okay to pour down the gutter. However putting anything but stormwater into the system pollutes Clear Creek and the City's municipal code prohibits disposing of anything into the storm drainage system.

To report a spill or illegal dumping please contact the Golden Police Department at 303-384-8045.

It is the goal of the City's Stormwater Program to minimize pollutants that are carried by stormwater runoff. Please contact the City's Environmental Services Division at [esdiv@cityofgolden.net](mailto:esdiv@cityofgolden.net) or 303-384-8181 for additional information.

# 2009 Water Quality Monitoring Results

The following tables contain the results of all substances that are regulated by State and Federal law that were detected in Golden's water during the 2009 monitoring period. Most of the monitoring performed by Golden's Environmental Services lab results in non detect levels allowing the City to perform reduced monitoring for substances that pose no risk to our system. Some of those results will show dates that may be more than a year old.

## Detected Regulated Substances

For more information, call the Water Quality Lab at 303-384-8181.

### Monitored leaving the Water Treatment Plant

Organic/Inorganic	Sample Date	Average	Range Found	MCL	MCLG	No Violations	Common Sources
2, 4-D, ppb	10-14-09	0.15	n/a	70	70		Run-off from herbicide use
Barium, ppm	5-5-09	0.035	n/a	2	2		Natural Erosion
Fluoride, ppm	monthly	0.64	0.36 - 0.83	4	4		Natural Erosion
Nitrate, ppm	5-5-09	0.27	n/a	10	10		Fertilizer Run-off
*Total Organic Carbon (TOC), ratio (TOC, reported as a ratio, must remain above 1.0 for optimal water treatment.)	monthly - RAA	1.48	1.13 - 1.83	TT	TT	Naturally present in the environment	

Turbidity	Sample Date	Result	Treatment Requirement	No Violations	Common Sources
Turbidity, NTU (Measure of the cloudiness of water. It is a good indicator of the effectiveness of our filtration system)	6 times per day	highest single reading 0.29 ntu	Maximum of 1.0 ntu at any time		
Monthly averages must be less than 0.3 NTU for 95% of the time. In Golden, 100% of all turbidity measurements were less than 0.3 NTU for 2009.					

### Monitored at consumer taps

Disinfection By-Products	Sample Date	Average	Range Found	Highest RAA	MCL	MCLG	No Violations	Common Sources
Total Trihalomethanes, ppb	quarterly - RAA	48.1	26.65 - 57.75	49.6	80	n/a		By-product of Chlorination
Total Haloacetic Acids, ppb	quarterly - RAA	14.1	3.72 - 37.9	19.7	60	n/a		By-product of Chlorination
Chlorine (free), ppm	throughout the year	0.95	0.46 - 1.47	n/a	MRDL - 4	MRDLG - 4	Drinking Water Disinfectant	

Lead and Copper	Sample Date	Concentration at 90th Percentile	Number of Exceedences at 90th Percentile	AL	No Violations	Common Sources
Lead, ppb	2008-2010	< 2	0	15		Corrosion of household plumbing
Copper, ppm	2008-2010	0.039	0	1.3	Corrosion of household plumbing	

The requirement to monitor for lead and copper at consumer taps has been reduced to once every 3 years. 32 Golden households sampled in 2008.

\*Golden uses enhanced treatment to remove the naturally occurring organic compounds that can combine with disinfectants to form Disinfectant By-Products. The ratio of TOC removal measures our compliance with this treatment technique.

# Other Monitoring Results

## Monitored leaving the Water Treatment Plant

Substance	Sample Date	Average	Range Found	MCL	SMCL	Common Sources
Hardness, ppm	weekly	91	33 - 159	n/a	None	Erosion of Natural Deposits
Potassium, ppm	5-5-09	3.6	n/a	n/a	None	Erosion of Natural Deposits
Zinc, ppm	5-5-09	0.095	n/a	n/a	5	Erosion of Natural Deposits
Sodium, ppm	5-5-09	33	n/a	n/a	None	Erosion of Natural Deposits
Chloride, ppm	5-5-09	46	n/a	n/a	250	Erosion of Natural Deposits
Sulfate, ppm	5-5-09	79	n/a	n/a	250	Erosion of Natural Deposits
pH, su	daily	8.4	8.0 - 8.9	n/a	6.5 - 8.5	Treatment

## Monitored in the Distribution System

Manganese, ppm	monthly	0.011	0.006 - 0.04	n/a	0.05	Erosion of Natural Deposits
Iron, ppm	monthly	0.03	0.007 - 0.086	n/a	0.3	Erosion of Natural Deposits

# Glossary of Terms and Definitions

### 90th Percentile:

The point at which 90% of all values fall at or below this level.

### Action Limit (AL):

The concentration, which if exceeded, triggers a treatment modification. 90% of households tested must be below the AL.

### Maximum Contaminant Level (MCL):

The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

### Maximum Contaminant Level Goal (MCLG):

The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

### Maximum Residual Disinfectant Level (MRDL):

The highest level of a disinfectant allowed in drinking water.

### Maximum Residual Disinfectant Level Goal (MRDLG):

The level of drinking water disinfectant below which there is no known health risk.

n/a: - not applicable

NTU: nephelometric turbidity unit, used to measure water clarity

pCi/L: picocuries per liter, used to measure radioactivity

ppb: part per billion - corresponds to 1 inch in 16,000 miles

ppm: part per million - corresponds to one inch in 16 miles

### Running Annual Average (RAA):

Annual average based on weekly, monthly or quarterly monitoring.

### Secondary Maximum Contaminant Level (SMCL):

Non-enforceable levels that primarily affect the aesthetic quality of drinking water.

### Secondary Maximum Contaminant Level Goal (SMCLG):

The desirable goal, but not enforceable.

su: standard units

### Treatment Technique (TT):

A required process intended to reduce the level of a contaminant in drinking water instead of a MCL.

Laboratory staff performs hundreds of drinking water tests on a daily, weekly, monthly and annual basis. Samples are taken in Clear Creek, through every step of the treatment process and at consumer taps. Sample sites around the City are selected based on elevation and the distance from the water treatment plant. Golden's water distribution system has 7 distinct elevation zones.

## If You Have Special Health Concerns:



All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised individuals, such as persons undergoing chemotherapy, persons who have undergone organ transplants, those with HIV/AIDS or other immune system disorders, and some elderly and infants can be particularly at risk for infection. These people should seek advice about drinking water from their health care providers. For more information about contaminants and potential health effects, or to receive a copy of the EPA/CDC guidelines to lessen the risk of infection by Cryptosporidium and other microbiological contaminants, contact the EPA Safe Drinking Water Hotline toll free at 1-800-426-4791.

## What About Lead?

Young children and pregnant women are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than other homes in the community as a result of materials used in your home's plumbing. The City of Golden is responsible for providing you with high quality drinking water but cannot control the variety of materials used in water service lines and home plumbing components. You can minimize your exposure by flushing your tap for 30 seconds to 2 minutes before using water for cooking or drinking. If you are concerned about levels of lead in your home, you may wish to have your water tested. Information on lead in drinking water, testing methods and steps you can take to minimize your exposure is available from the Safe Drinking Water Hotline at 1-800-426-4791.

## Golden's Pharmaceutical Take Back Program

There has been a lot of information lately about the proper disposal of used or unwanted medications. Recent studies have shown that some pharmaceutical compounds are finding their way into the environment. This occurs when pharmaceuticals are flushed down the toilet or thrown out in the trash.

Golden is committed to protecting public health and we understand that the best and most cost effective way to ensure that Golden residents receive safe high quality drinking water is to keep our source water clean. Our main goal is to inform the public about the proper disposal of certain types of drugs and to provide the guidance

consumers need to make informed decisions about the products they use every day.

In 2009, the City sponsored its first annual pharmaceutical take back day and it was a big success, taking in almost 100 pounds of unwanted medications. The City held its second annual pharmaceutical take back day in May in conjunction with Golden Pride Days.

For more information about the take back program and contaminants that are of emerging concern in our environment, please go to [www.cityofgolden.net/EnvironmentalServices](http://www.cityofgolden.net/EnvironmentalServices) and click on Drinking Water.

# Water Supply and Infrastructure

In 2009 the Utility Division made several improvements to the City's **water distribution system**. These improvements included replacing several miles of water mains in addition to upgrading or replacing several pressure reducing valves in the system. The City also upgraded the telemetry at the five remotely controlled water pump stations in Golden. Residents may have also noticed the removal of the old water tank which has been visible for many years in the field west of the pillars on Lookout Mountain Road.

On the **wastewater** side, the sewer mainlines throughout the entire City were 'smoke tested' to locate improper vents and taps as well as damaged pipes and manholes that permit unwanted inflow and infiltration of ground water into the sanitary sewer. We also installed more sampling stations throughout the City for wastewater quality monitoring.

In the **watershed**, a portion of the Vidler Tunnel was rehabilitated in 2009. In addition, routine inspections and maintenance were performed at the three storage reservoirs: Guanella Reservoir, Upper Urad Reservoir, and Lower Urad Reservoir.

All of these activities are part of Golden's overall plan to improve and protect not only our water supply, but the quality of water downstream. Golden continues to zealously protect its valuable water rights with the vision of sustainable supply through changing economic and climatic conditions.

## Updated SCADA System

The water treatment plant is wrapping up a three year long capital improvement project in the spring of 2010. The project consisted of replacing all of the outdated SCADA (Supervisory Controls and Data Acquisition) within the plant. The SCADA system allows the treatment operators to control and monitor the various functions within the plant and distribution system. This last phase replaced all of the filter controls. The new system automated many of the day to day functions of the filters that were previously done manually by the operators. It provides better consistency through the filtration process and reduces water use during a backwash process all of which will provide cleaner safer water.





## ESPAÑOL

Este informe contiene información importante sobre su agua de beber. Si no puede leer, por favor busque la ayuda de alguien que lo puede traducir.

*The City frequently schedules tours of the Water Treatment Plant. If you or your group or class are interested, please call 303-384-8186 to make an appointment.*

**For more information,  
contact:**



City of  
**Golden**

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